

REMARKS

Applicants respectfully request that this amendment be entered, and that their subject U.S. Patent application be passed to issuance in view thereof. Applicants respectfully submit that the amendments to claim 1 more clearly define Applicants' invention and does not require further search by the Examiner.

Claims 1-20 are pending in the subject application. Applicants respectfully request that claims 1 and 5 be amended, and claims 13-20 be canceled.

Claim Rejections – 35 U.S.C. 102(b)

The Examiner has rejected claims 1-4 and 8 under 35 U.S.C. 102(b) as being anticipated by Akbar et al. (U.S. Patent No. 5,259,918).

Akbar et al. do not anticipate or suggest Applicants' independent claim 1, as amended, and claims 2-12 dependent thereupon.

Referring to FIG. 1 of the present application, Applicants' claim 1, as amended, recites the limitations of a first pumping system 36/37, a second pumping system 31/32/33 and a third pumping system 40/41 coupled to reaction chamber 22. Applicants' first, second and third pumping systems are each coupled to the reaction chamber so that they can affect the vacuum pressure of the reaction chamber during heating of the substrate. Further, each of Applicants' first, second and third pumping systems are not isolated from the reaction chamber by, for example, a loadlock. Applicants' first and second pumping systems are capable of maintaining the vacuum pressure of reaction chamber 22 at a first and second vacuum pressure, respectively, and the third pumping system is capable of transitioning the reaction chamber between the first and second vacuum pressures. Thus, in order to maintain and/or transition between the first and second vacuum pressures, the first, second and third pumping systems of the present invention are coupled to the reaction chamber and are capable of maintaining/transitioning the vacuum

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pressure during heating of the substrate in the reaction chamber.

Referring to FIG. 4 of Akbar et al., pumping systems 108/110 and 118/120 are isolated from reaction chamber 102 by valve 114 which is shut (column 6, lines 38-39) to isolate the loadlock chamber 106 from reaction chamber 102 during heating. First pumping system 108/110 and second pumping system 118/120 are used to pump down loadlock chamber 106 to a transition pressure so that substrates can be loaded into reaction chamber 102. Once the substrates are loaded into reaction chamber 102, valve 114 is shut to isolate the loadlock 106 from the reaction chamber 102 during processing. As such, only third pumping system 160/162/164 is coupled to the reaction chamber 102 for maintaining vacuum pressure during processing. Thus, the first and second pumping systems of Akbar et al. can not affect the pressure of reaction chamber 102 during processing of the substrates since the first and second pumping systems are not coupled to reaction chamber 102. Rather, the first and second pumping systems are coupled to loadlock chamber 106 which is coupled to reaction chamber 102. Akbar et al. are silent on disclosing first, second and third pumping systems coupled to a reaction chamber for affecting the vacuum pressure of the reaction chamber during processing of a substrate. Akbar et al. only disclose one pumping system 160/162/164 for affecting the vacuum pressure of reaction chamber 102.

Therefore, Applicants respectfully submit that the rejections under 35 U.S.C. 102(b) have been overcome.

Claim Rejections – 35 U.S.C. 103 (a)

The Examiner has rejected claims 5 and 11 under 35 U.S.C. 103(a) as being unpatentable over Akbar et al. (U.S. Patent No. 5,259,918) as applied to claims 1-4 and 8 above, and further in view of Zhou et al. (U.S. Patent No. 5,879,467); claims 6, 9 and 10 under 35 U.S.C. 103(a) as being unpatentable over Akbar et al. (U.S. Patent No. 5,259,918) as applied to claims 1-4 and 8 above, and further in view of Chu et al. (U.S. Patent No. 6,013,134); and, claims 7 and 12 under

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35 U.S.C. 103(a) as being unpatentable over Akbar et al. (U.S. Patent No. 5,259,918) in view of Chu et al (U.S. Patent No. 6,013,134) as applied to claims 6, 9 and 10 above, and further in view of Zhou et al. (U.S. Patent No. 5,879,467).

As discussed above, Applicants believe that Akbar et al. do not anticipate, teach or suggest Applicants' independent claim 1, as amended. Thus, Akbar et al., Zhou et al. or Chu et al., individually or in combination, do not teach or suggest Applicants' claims 5-7 and 9-12.

Therefore, Applicants respectfully submit that the rejections under 35 U.S.C. 103(a) have been overcome.

Prior Art Made of Record

Applicants have reviewed the prior art made of record, Meyerson (U.S. Patent No. 5,298,452), Venkatraman et al. (U.S. Patent No. 6,083,313), Barnett et al. (U.S. Patent No. 5,783,295), Markunas et al. (U.S. Patent No. 5,180,435) and Collins et al. (U.S. Patent No. 5,210,466), and respectfully submit that Applicants' independent claim 1, as amended, and claims dependent thereupon, are not anticipated, taught or suggested by the prior made of record.

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CONCLUSION

In light of the foregoing amendments and remarks, all of the claims now presented are believed to be in condition for allowance, and Applicants respectfully request that the outstanding rejections be withdrawn and this application be passed to issue at an early date.

The Examiner is urged to call the undersigned at the number listed below if, in the Examiner's opinion, such a phone conference would aid in furthering the prosecution of this application. No fee is due by virtue of this amendment. However, if the PTO determines that a fee is required, please charge Applicants' Deposit Account, 09-0456. If any extensions or fees are not accounted for, such extension is requested and the associated fee should be charged to our deposit account.

Respectfully Submitted,

For: Chu et al.,

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